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DEPARTMENT OF THE NAVY
JUSTIFICATION OF ESTIMATES
FY 1991 BUDGET ESTIMATES

AD-A219 525



SUBMITTED TO CONGRESS JANUARY 1990

PROCUREMENT

WEAPONS PROCUREMENT, NAVY

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THIS DOCUMENT CONTAINS STATEMENT A

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DEPARTMENT OF THE NAVY
WEAPONS PROCUREMENT, NAVY

JUSTIFICATION OF ESTIMATES FOR FISCAL YEAR 1991

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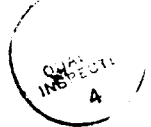
WEAPONS PROCUREMENT, NAVY

For construction, procurement, production, modification, and modernization of missiles, torpedoes, other weapons, other ordnance and ammunition, and related support equipment including spare parts, and accessories therefor; expansion of public and private plants, including the land necessary therefor, and such lands and interests therein, may be acquired, and construction prosecuted thereon prior to approval of title; and procurement and installation of equipment, appliances, and machine tools in public and private plants; reserve plant and Government and contractor-owned equipment layaway, as follows: Ballistic Missile Programs, \$1,443,165,000; Other Missile Programs, \$2,831,852,000; MK-48 ADCAP Torpedo, \$438,642,000; MK-50 Torpedo, \$271,130,000; Sea Lance, \$1,799,000; ASW Targets, \$12,983,000; ASROC, \$9,282,000; Modification of Torpedoes, \$9,653,000; Torpedo Support Programs, \$39,002,000; ASW Range Support, \$24,205,000; Other Weapons, \$168,838,000; Spares and Repair Parts, \$111,341,000; Installation of Modernization Equipment \$30,420,000. In all: \$5,392,312,000. \$6,161,400,000, to remain available for obligation until September 30, [1992]1993, of which \$8,600,000 shall be available only for the Navy Reserve and the Marine Corps Reserve. (10 U.S.C. 5013, 5063, 7201; Department of Defense Appropriations Act, 1990; additional authorizing legislation to be proposed.)

Ballistic missile modernization and production program
related equipment

STATEMENT "A" per Dianne Glaister
 Navy Budget Office/NCEIG-2
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Weapons Procurement, Navy
Program and Financing (in Thousands of dollars) SUMMARY

Identification code	17-15J7-0-1-051	Budget Plan (amounts for PROCUREMENT actions programmed)				Obligations							
		1989 actual		1990 est.		1991 est.		1989 actual		1990 est.		1991 est.	
Program by activities:													
Direct program:													
00.0101		1,870,263	1,442,660	1,540,001	2,159,924	1,426,654	1,397,763						
00.0201	Ballistic missiles	3,192,124	2,837,940	3,224,252	3,102,607	2,841,930	3,373,259						
00.0301	Other missiles	844,468	803,621	841,318	973,809	774,073	784,142						
00.0401	Torpedoes and related equipment	107,345	157,457	202,146	109,809	135,916	185,167						
00.0501	Other weapons			275,174			227,038						
00.0601	Other Ordnance	77,308	111,302	78,509	110,180	108,793	73,777						
	Spares and repair parts												
00.9101	Total direct program	6,091,508	5,352,980	6,161,400	6,456,329	5,287,366	6,041,146						
01.0101	Reimbursable program	162,651	70,000	70,000	122,601	171,178	70,000						
10.0001	Total	6,254,159	5,422,980	6,231,400	6,578,930	5,458,544	6,111,146						
Financing:													
Offsetting collections from:													
11.0001	Federal funds(-)	-9,686	-30,766	-30,766	-9,150	-30,766	-30,766						
13.0001	Trust funds(-)	-131,396	-39,234	-39,234	-122,806	-39,234	-39,234						
14.0001	Non-Federal sources(-)	-21,569			-21,611								
17.0001	Recovery of prior year obligations				-6,512								
Unobligated balance available, start of year:													
21.4002	For completion of prior year budget plans				-1,791,170	-1,424,739	-1,397,175						
21.4003	Available to finance new budget plans	-71,900	-1,739	-13,900	-71,900	-1,739	-13,900						
21.4009	Reprogramming from/to prior year budget plan	-39,088	8,000		93,100	-8,000							
22.4001	Unobligated balance transferred to other acc	93,100	-8,000										
Unobligated balance available, end of year:													
24.4002	For completion of prior year budget plans	1,739	13,900		1,424,739	1,397,175	1,517,429						
24.4003	Available to finance subsequent year budget	9,888			1,739	13,900							
25.0001	Unobligated balance lapsing				9,888								
39.0001	Budget authority	6,085,247	5,365,141	6,147,500	6,085,247	5,365,141	6,147,500						
Budget authority:													
Appropriation													
40.0001	Reduction pursuant to P.L. 100-463	6,154,032	5,392,312	6,161,400	6,154,032	5,392,312	6,161,400						
40.0004	Reduction pursuant to P.L. 101-165	-5,062			-5,062								
40.0005	Transferred to other accounts(-)	-63,723	-5,932		-63,723	-5,932							
41.0001	Transferred to other accounts(-)		-42,500			-42,500							
41.2201	Transferred to other accounts (unob bals)		-1,739	-13,900		-1,739	-13,900						
42.0001	Transferred from other accounts		23,000			23,000							
43.0001	Appropriation (adjusted)	6,085,247	5,365,141	6,147,500	6,085,247	5,365,141	6,147,500						

Weapons Procurement, Navy
Program and Financing (in Thousands of dollars) SUMMARY

Identification code	17-1507-0-1-051	1989 actual	1990 est.	1991 est.
Relation of obligations to outlays:				
71.0001	Obligations incurred, net	6,425,363	5,388,544	6,041,146
72.4001	Obligated balance, start of year	8,670,165	9,510,387	9,426,831
74.4001	Obligated balance, end of year	-9,510,387	-9,426,831	-9,929,977
77.0001	Adjustments in expired accounts (net)	-22,001		
78.0001	Adjustments in unexpired accounts	-6,512		
90.0001	Outlays	5,556,629	5,472,100	5,538,000

Weapons Procurement, Navy
Object Classification (in Thousands of dollars) SUMMARY

Identification code	17-1507-0-1-051	1989 actual	1990 est.	1991 est.
Direct obligations:				
Other services:				
125.003	Contracts	164,556	177,006	190,120
126.001	Supplies and materials	411,290	396,678	457,821
131.001	Equipment	5,880,483	4,713,682	5,393,205
199.001	Total Direct obligations	6,456,329	5,287,366	6,041,146
Reimbursable obligations:				
226.001	Supplies and materials	122,601	171,178	69,999
231.001	Equipment	122,601	171,178	70,000
299.001	Total Reimbursable obligations			
999.901	Total obligations	6,578,930	5,458,544	6,111,146

Weapons Procurement, Navy
Program and Financing (in Thousands of dollars) FISCAL YEAR 1987

Identification code	17-1507-0-1-051	Budget plan (amounts for PROCUREMENT actions programed)		Obligations		
		1989 actual	1990 est.	1991 est.	1990 est.	1991 est.
Program by activities:						
Direct program:						
00.0101	Ballistic missiles			1,973		
00.0201	Other missiles			130,341		
00.0301	Torpedoes and related equipment			138,048		
00.0401	Other weapons			7,412		
00.0601	Spare and repair parts			8,910		
00.9101	Total direct program			286,684		
01.0101	Reimbursable program			1,131		
10.0001	Total			287,815		
Financing:						
Offsetting collections from:						
11.0001	Federal funds(-)			-147		
13.0001	Trust funds(-)			7,229		
17.0001	Recovery of prior year obligations			-6,500		
Unobligated balance available, start of year:						
21.4002	For completion of prior year budget plans			-308,684		
21.4003	Available to finance new budget plans			-71,900		
21.4009	Reprogramming from/to prior year budget plan					
22.4001	Unobligated balance transferred to other acc			82,300		
25.0001	Unobligated balance lapsing			9,888		
39.0001	Budget authority					

Weapons Procurement, Navy
Program and Financing (in Thousands of dollars) FISCAL YEAR 1988

Identification code	17-1507-0-1-051	Budget plan (amounts for PROCUREMENT actions programmed)		Obligations	
		1989 actual	1990 est.	1991 est.	1991 est.
Program by activities:					
Direct program:					
00.0101	Ballistic missiles	569,899		62,229	
00.0201	Other missiles	316,722		183,886	
00.0301	Torpedoes and related equipment	193,136		18,484	
00.0401	Other weapons	18,498		7,305	
00.0601	Spares and repair parts	37,587		1,952	
00.9101	Total direct program	1,135,842		273,856	
01.0101	Reimbursable program	26,960		33,037	
10.0001	Total	1,162,802		306,893	
Financing:					
Offsetting collections from:					
11.0001	Federal funds(-)	683			
13.0001	Trust funds(-)	1,361			
14.0001	Non-Federal sources(-)	-42			
17.0001	Recovery of prior year obligations	-12			
21.4002	Unobligated balance available, start of year:				
21.4009	For completion of prior year budget plans				
22.4001	Reprogramming from/to prior year budget plan				
24.4002	Unobligated balance transferred to other acc				
	Unobligated balance available, end of year:				
	For completion of prior year budget plans				
39.0001	Budget authority	-1,482,486		-306,893	
		-10,800			
		10,800			
		306,893			

Weapons Procurement, Navy
Program and Financing (in Thousands of dollars) FISCAL YEAR 1989

Identification code	17-1507-0-1-051	Budget plan (amounts for PROCUREMENT actions programmed)		Obligations	
		1989 actual	1990 est.	1989 actual	1990 est.
Program by activities:					
Direct program:					
00.0101	Ballistic missiles	1,870,263		1,588,052	199,077
00.0201	Other missiles	3,192,124		2,655,544	378,976
00.0301	Torpedoes and related equipment	844,468		642,625	147,007
00.0401	Other weapons	107,345		83,899	9,491
00.0601	Spare and repair parts	77,308		63,683	10,575
00.9101	Total direct program	6,091,508		5,033,803	745,126
01.0101	Reimbursable program	162,651		94,510	68,141
10.0001	Total	6,254,159		5,128,313	813,267
Financing:					
Offsetting collections from:					
11.0001	Federal funds(-)	-9,686		-9,686	
13.0001	Trust funds(-)	-131,396		-131,396	
14.0001	Non-Federal sources(-)	-21,569		-21,569	
21.4002	Unobligated balance available, start of year:				
21.4003	For completion of prior year budget plans		-1,739		-1,117,846
21.4009	Available to finance new budget plans		8,000		-1,739
22.4001	Reprogramming from/to prior year budget plan	-8,000	-8,000		-8,000
24.4002	Unobligated balance transferred from other a			1,117,846	312,579
24.4003	Unobligated balance available, end of year:	1,739		1,739	
24.4003	For completion of prior year budget plans				
24.4003	Available to finance subsequent year budget				
39.0001	Budget authority	6,085,247	-1,739	6,085,247	-1,739
Budget authority:					
40.0001	Appropriation	6,154,032		6,154,032	
40.0004	Reduction pursuant to P.L. 100-463	-5,062		-5,062	
41.0001	Transferred to other accounts(-)	-63,723		-63,723	
41.2201	Transferred to other accounts (unob bals)		-1,739		-1,739
43.0001	Appropriation (adjusted)	6,085,247	-1,739	6,085,247	-1,739

Weapons Procurement, Navy
Program and Financing (in Thousands of dollars) FISCAL YEAR 1990

Identification code	17-1507-0-1-051	Budget Plan (amounts for PROCUREMENT actions programmed)			Obligations		
		1989 actual	1990 est.	1991 est.	1989 actual	1990 est.	1991 est.
Program by activities:							
Direct program:							
00.0101	Ballistic missiles		1,442,660			1,165,348	143,673
00.0201	Other missiles		2,837,940			2,279,068	558,852
00.0301	Torpedoes and related equipment		803,621			608,582	86,229
00.0401	Other weapons		157,457			119,120	16,773
00.0601	Spare and repair parts		111,302			96,266	7,920
00.9101	Total direct program		5,352,980			4,268,384	813,447
01.0101	Reimbursable program		70,000			70,000	
10.0001	Total		5,422,980			4,338,384	813,447
Financing:							
Offsetting collections from:							
11.0001	Federal funds(-)		-30,766			-30,766	
13.0001	Trust funds(-)		-39,234			-39,234	
21.4002	Unobligated balance available, start of year:						
21.4003	For completion of prior year budget plans			-13,900			-1,084,596
21.4003	Available to finance new budget plans						-13,900
24.4002	Unobligated balance available, end of year:						
24.4003	For completion of prior year budget plans		13,900			1,084,596	271,149
24.4003	Available to finance subsequent year budget					13,900	
39.0001	Budget authority		5,366,880	-13,900		5,366,880	-13,900
Budget authority:							
40.0001	Appropriation		5,392,312			5,392,312	
40.0005	Reduction pursuant to P.L. 101-165		-5,932			-5,932	
41.0001	Transferred to other accounts(-)		-42,500			-42,500	
41.2201	Transferred to other accounts (unob bals)			-13,900			-13,900
42.0001	Transferred from other accounts		23,000			23,000	
43.0001	Appropriation (adjusted)		5,366,880	-13,900		5,366,880	-13,900

Weapons Procurement, Navy
Program and Financing (in Thousands of dollars) FISCAL YEAR 1991

Identification code	17-1507-0-1-051	Budget plan (amounts for PROCUREMENT actions programmed)			Obligations		
		1989 actual	1990 est.	1991 est.	1989 actual	1990 est.	1991 est.
Program by activities:							
Direct program:							
00.0101	Ballistic missiles		1,540,001			1,170,956	
00.0201	Other missiles		3,224,252			2,656,803	
00.0301	Torpedoes and related equipment		841,318			643,077	
00.0401	Other weapons		202,146			154,439	
00.0501	Other Ordnance		275,174			227,038	
00.0601	Spare and repair parts		78,509			62,807	
00.9101	Total direct program		6,161,400			4,915,120	
01.0101	Reimbursable program		70,000			70,000	
10.0001	Total		6,231,400			4,985,120	
Financing:							
Offsetting collections from:							
11.0001	Federal funds(-)		-30,766			-30,766	
13.0001	Trust funds(-)		-39,234			-39,234	
24.4002	Unobligated balance available, end of year:						
	For completion of prior year budget plans					1,246,280	
40.0001	Budget authority (Appropriation)		6,161,400			6,161,400	

Summary of Requirements
(In Thousands of Dollars)

	<u>FY 1989 Estimate</u>	<u>FY 1990 Estimate</u>	<u>FY 1991 Estimate</u>
Ballistic Missiles	1,870,263	1,442,660	1,540,001
Other Missiles	3,192,124	2,837,940	3,224,252
Torpedoes and Related Equipment	844,468	803,621	841,318
Other Weapons	107,345	157,457	202,146
Other Ordnance	-	-	275,174
Spares and Repair Parts	77,308	111,302	78,509
<hr/>			
TOTAL DIRECT PROGRAM	6,091,508	5,352,980	6,161,400
Reimbursable Program	162,651	70,000	70,000
<hr/>			
TOTAL PROGRAM REQUIREMENTS	6,254,159	5,422,980	6,231,400

Justification of Funds

The following paragraphs provide justification for the FY 1991 request for the Weapons Procurement, Navy (WPN) appropriation. Initial spare parts amounts are included for information under each system or line item but are budgeted separately in the spares and repair parts category of the Budget Activity 6 justification.

BUDGET ACTIVITY 1: BALLISTIC MISSILES

(\$ in Thousands)

FY 1991 Estimate	- \$ 1,540,001
FY 1990 Estimate	- \$ 1,442,660
FY 1989 Estimate	- \$ 1,870,263

Purpose and Scope of Work

Funds budgeted under this activity finance the procurement of fleet ballistic missiles, ancillary checkout and test equipment, missile modifications, and support equipment and facilities required to outfit and support the submarines assigned to the sea-based strategic deterrent forces.

BALLISTIC MISSILES:

(\$ in Thousands)

FY 1991 Estimate	- \$ 1,537,597
FY 1990 Estimate	- \$ 1,440,330
FY 1989 Estimate	- \$ 1,867,676

The FY 1991 request includes continuing procurement support for the Trident I C-4 missile and for the Trident II D-5 missile, including advance procurement requirements, as noted below.

Trident I C-4 Missile

(\$ in thousands)			
		FY 1991	
	FY 1990	Qty	Amount
Weapon System Cost			
Initial Spares	\$ 1,196		\$ 1,252
Procurement Cost	2,985		3,006
	\$ 4,181		\$ 4,258

The Trident mission is to provide an undersea missile system in order to ensure that the U.S. continues to maintain a credible deterrent independent of foreseeable threats in the 1990's and beyond. To accomplish this mission, the Trident I missile was developed to support two separate systems. The Trident I system is comprised of Continental United States based nuclear powered submarines equipped with long range Trident I strategic missiles and associated direct support shore facilities. The Trident I Backfit system provides Trident I missiles for backfit into existing POSEIDON submarines, thereby providing these submarines a greater range of patrol in order to insure their survivability in the event of unforseeable enemy breakthroughs in ASW capabilities.

The FY 1991 Trident I missile request for \$1.2 will provide for procurements essential to the continued support of the C-4 flight test program, including MK-5 guidance and and MK-4 reentry system components, which will continue throughout the operational life of the weapon system.

Trident II D-5 Missile

(\$ in thousands)			
		FY 1991	
	FY 1990	Qty	Amount
Procurement			
Advance Procurement	\$1,223,078	52	\$1,343,780
Initial Spares	216,056		192,565
Procurement Cost	1,546		1,595
	\$1,440,680	52	\$1,537,940

Trident II D-5 Missile

The Trident II missile will be carried on Trident Fleet Ballistic Missile submarines, ensuring that the United States will continue to maintain a highly survivable strategic deterrent for the 1990's and beyond. Deployment of the Trident II missile will (1) enhance Fleet Ballistic Missile submarine survivability by increasing sea launched ballistic missile range at full payload to exploit the total patrol area available to the Trident submarines, (2) minimize total weapon system costs by increasing sea launched ballistic missile payload to the level permitted by the size of the

Trident submarine launch tube, thereby allowing mission capability to be achieved with a lesser number of submarines, (3) balance the Triad by adding efficient hard target kill capability to the sea launched ballistic missile, and (4) enhance essential equivalence with the Soviets by increasing our warhead inventory, throw weight, and accuracy in the presence of increasing Soviet capabilities and force levels.

Funding in this line is required to support the procurement of an all new Trident II missile, initial production of which commenced in FY 1987 and to which the following key program milestones apply:

- o Equipment procurements in FY 1986 through FY 1991 based on lead-time away requirements
- o SWFLANT installation, test, checkout and equipment/facility integration began in FY 1987
- o Began PEM missile processing at Strategic Weapons Facility, Atlantic (SWFLANT) - July 1988
- o First Performance Evaluation Missile (PEM) flight test - March 1989
- o Trident II missile Initial Operational Capability (IOC) - March 1990

The FY 1990 funding of \$1,439.1 million supports production of an additional 42 Trident II missiles; production of associated guidance and flight test instrumentation systems; procurement of MK-4 and MK-5 reentry systems; and planning, activation and initial equipment outfitting required to establish a Trident II missile processing capability at the Strategic Weapons Facility, Pacific (SWFPAC). The FY 1991 funding request of \$1,536.3 million will support production of an additional 52 Trident II missiles; production of associated guidance and flight test instrumentation systems; procurement of MK-4 and MK-5 reentry systems; and support required to maintain the missile processing capability at SWFPAC.

Funding in both years includes reduced prices for the airframes, rocket motors and guidance systems based on participation by the United Kingdom (U.K.).

Advance Procurement

The FY 1990 request of \$216.1 million and FY 1991 request of \$192.6 million will provide for procurement of both long lead and production continuity components, subassemblies and raw materials required to support the manufacture in future years of TRIDENT II missiles, MK-6 guidance systems, and special purpose instrumentation used in the TRIDENT II flight test program. Total advance procurement requirements comprise two major subsets of commodity acquisition: traditional, or long

lead, advance procurement, which includes those items having longer manufacturing lead times than the using D-5 end items; and production continuity advance procurement, which entails the procurement of certain critical components earlier than lead-time alone would dictate in order to ensure their continuous production. These latter production continuity procurements encompass a broad range of components and materials which must be produced at minimum, uninterrupted rates on dedicated production lines, as well as life-of-type or one-time quantity buys of items required to support the total planned program. The quality and homogeneity obtained by these means are essential to assure the consistent performance reliability of the missiles to be procured for the Trident II program.

SUPPORT EQUIPMENT AND FACILITIES:

(\$ in Thousands)

FY 1991 Estimate - \$ 2,404
 FY 1990 Estimate - \$ 2,330
 FY 1989 Estimate - \$ 2,587

The FY 1991 request includes continuing procurement support for capital maintenance projects at government-owned missile industrial facilities.

Missile Industrial Facilities

(\$ in thousands)			
FY 1990		FY 1991	
Qty	Amount	Qty	Amount
	\$ 2,330		\$ 2,404
Procurement Cost			

Funding for missile industrial facilities provides for capital maintenance projects at Navy-owned Naval Industrial Reserve Ordnance Plants (NIROPs) at Sunnyvale and Santa Cruz, California, and Bacchus, Utah, in support of the Fleet Ballistic Missile program.

Projects planned in FY 1991 include additions and modifications to, and rehabilitation of, non-serviceable equipment and real property. The projects include: converting street lights to low pressure sodium, refurbishing fume ducts and vent fans, refurbishing fire sprinkler systems, and repairing and replacing perimeter fencing.

ACTIVITY 2: OTHER MISSILES

(\$ in Thousands)

FY 1991 Estimate - \$ 3,224,252
FY 1990 Estimate - \$ 2,837,940
FY 1989 Estimate - \$ 3,192,124

Purpose and Scope of Work

Funds budgeted under this activity finance the procurement and modification of strategic and tactical guided missiles, and aerial targets. In addition, funds provide for weapons industrial facilities and for the support of satellites, launches, and associated equipment for the Fleet Satellite Communications program.

Guided missiles are procured for operational inventory requirements to meet combat sustainability objectives, combat usage, quality assurance testing, and training purposes. Aerial targets are required to support training programs and to permit evaluation of missile performance. Procurement funds provide for: (1) the components that comprise the end-items, such as guidance, control, motors, warheads, and fuzes; (2) effort and hardware associated with the production and assembly of these items, such as production engineering, production proofing, tools and test equipment; and (3) special handling and test equipment, training materials and other specialized items required for operational fleet support of the item.

STRATEGIC & TACTICAL MISSILES:

(\$ in Thousands)

FY 1991 Estimate - \$ 2,752,813
FY 1990 Estimate - \$ 2,309,570
FY 1989 Estimate - \$ 2,657,297

Funds budgeted under this category finance the procurement of strategic and tactical air-, surface-, and submarine-launched missiles, other missile support, aerial targets, and drones and decoys.

Tomahawk Cruise Missile

	FY 1990		FY 1991	
	Qty	Amount	Qty	Amount
Procurement	400	\$571,960	600	\$808,733
Initial Spares		33,724		28,086
Procurement Cost	400	\$605,684	600	\$836,819

The Tomahawk Cruise Missile provides four variants--nuclear, anti-ship, unitary warhead and conventional dispenser land attack--capable against targets at sea and on land. Tomahawk is capable of being launched from aircraft, ships, submarines, and ground launchers. The cruise missile can be fitted with either a conventional high explosive or nuclear warhead, and is propelled in flight by a small turbofan engine. The FY 1990 program of \$572.0 million procures 400 land attack missiles. The FY 1991 request of \$808.7 million will procure an additional 600 missiles. The Tomahawk missile is designed to be deployed in submarines and surface ships in a variety of launchers. This missile is competitively procured from General Dynamics and McDonnell Douglas.

The FY 1990 program and FY 1991 request are priced assuming the availability of Ground Launched Cruise Missile (GLCM) assets from the Air Force inventory which have been declared excess material not subject to the Intermediate Range Nuclear Forces (INF) Reduction Treaty. This has provided substantial cost savings.

AMRAAM Missile

	FY 1990		FY 1991	
	Qty	Amount	Qty	Amount
Procurement	85	\$107,885	550	\$421,916
Initial Spares		763		1,013
Procurement Cost	85	\$108,648	550	\$422,929

The AMRAAM (Advanced Medium Range Air-to-Air Missile) is the successor to the Sparrow missile and is being jointly procured by the Air Force and the Navy. The Air Force serves as executive service. The missile will provide an all-weather, all-aspect, beyond-visual-range, air-to-air missile compatible with the F-14, F-15, F-16, F/A-18, and A-6E Upgrade aircraft. AMRAAM will enhance Navy war-fighting capability in the 1990's and beyond through significant improvements in operational utility and combat effectiveness. The FY 1990 program will provide for AMRAAM required for missile systems integration with the F-14D aircraft, with the balance of the procurement going into the Fleet inventory. All FY 1991 requested quantities are for Fleet inventory loadout.

Phoenix Missile

	(\$ in Thousands)	
	FY 1990	FY 1991
	Qty	Qty
	Amount	Amount
Procurement	420	
Initial Spares	\$323,344	\$0
	2,230	
Procurement Cost	420	\$0
	\$325,574	\$0

The Phoenix missile system is comprised of a long-range airborne weapon control system (AN/AWG-9) with multiple target-handling capabilities and long-range missiles utilizing semi-active mid-course and active terminal guidance. Its mission is to kill multiple air targets with conventional warheads. Six such missiles can be carried aboard the F-14 aircraft. Near simultaneous launch is possible against six targets in an all-weather and heavy-jamming environment. The improved Phoenix missile, the AIM-54C, provides improved lethality, stream raid discrimination, electronic counter countermeasure (ECCM) performance, high and low altitude performance, and improved reliability and maintainability. As a result of these improvements, the missile has greater capability to counter the projected threat aircraft and cruise missile threats. The Phoenix does not replace any other missile. Competitive procurement began in FY 1989 between Hughes Aircraft and Raytheon Company. The FY 1990 program will be the final procurement of the Phoenix missiles for the Navy.

Harpoon Missile

	(\$ in Thousands)	
	FY 1990	FY 1991
	Qty	Qty
	Amount	Amount
Procurement	190	215
Initial Spares	\$212,091	\$241,086
	5,795	3,232
Procurement Cost	190	215
	\$217,886	\$244,318

The Harpoon is an air-, surface-, and submarine-launched cruise missile which provides an attack capability against targets at sea and on land. It uses an active or passive seeker, radar altimeter, and attitude reference assembly in conjunction with a small digital computer for missile guidance and control. It is propelled by a turbojet sustainer engine augmented by a solid booster for ship and submarine launch. The missile has a standard 13.5 inch diameter with a weight of 1,100 pounds for air launch and 1,500 pounds for ship launch. It is compatible with the Tartar, Terrier,

and ASROC ship launchers as well as with aircraft and submarine launch systems. The missile is planned for use aboard the FF-1052, DDG and DD-963, CG, CGN, PHM, BB, and FFG class ships, the P-3, S-3, A-6, F/A-18, and B-52G aircraft and nuclear attack submarines. The FY 1990 program provides for 190 Harpoon SLAM missiles. The FY 1991 request provides for 215 Harpoon missiles. The FY 1990 and FY 1991 air-launched anti-ship missile procurement quantities, in conjunction with Foreign Military Sales and retrofit program, support economic production rates. These weapons are requested to ensure adequate availability of weapons as new platforms are made operational, and to offset missile expenditures due to training and test requirements.

HARM Missile

	FY 1990		FY 1991	
	Qty	Amount	Qty	Amount
Procurement	1,162	\$291,770	1,320	\$339,382
Initial Spares		3,691		1,567
Procurement Cost	1,162	\$295,461	1,320	\$340,949

The High Speed Anti-Radiation Missile (HARM) is a joint Navy and Air Force air-to-surface missile designed to suppress or destroy land- and sea-based radars supporting enemy air defense systems. HARM is a design evolution of anti-radiation missiles (ARM) such as Shrike and Standard ARM, and is replacing both missiles in the Navy inventory. HARM characteristics include: high speed, large-launch envelope, wide-band-frequency coverage in a single head, high sensitivity and compatibility with various naval aircraft. The HARM has evolved from known and predicted deficiencies in Shrike and Standard ARM missiles in defeating current and future enemy air defense systems. Initial procurement commenced in FY 1981. The FY 1990 program and FY 1991 request continues procurement of this antiradiation missile to fill the Navy requirement. In addition, the Air Force will be procuring 326 missiles in FY 1990 and 120 in FY 1991, providing for a more economic production rate.

Initial procurement of the Low Cost Seeker, developed by the Naval Weapons Center, China Lake, and produced by Ford Aerospace, was initially appropriated in FY 1990 and is continued in FY 1991. Procurement begins in FY 1991 for the Block IV seeker units, produced by the prime contractor, Texas Instruments.

Standard Missiles

	(\$ in Thousands)		FY 1991	
	FY 1990	Amount	Qty	Amount
Procurement	940	\$390,214	900	\$607,762
Initial Spares		4,435		5,982
Procurement Cost	940	\$394,649	900	\$613,744

The Standard Missile is a solid-propellant, tail-controlled, surface-to-air and surface-to-surface missile with mid-course and semi-active homing guidance, home-on jamming capability, and proximity and contact fusing. The SM-2 Medium Range (MR) Missile will be deployed on Tartar New Threat Upgrade ships, Aegis CG 47/51 Cruisers, and Aegis DDG-51 Destroyers. The SM-2 Extended Range (ER) Missile will be deployed on Terrier CG and New Threat Upgrade ships. The FY 1990 program provides for procurement of 940 missiles for Aegis and Terrier ships, completing Terrier requirements. The FY 1991 request provides for procurement of 600 SM-2 MR's for Aegis ships and the initial buy of 300 Aegis Extended Range missiles. The FY 1990 program initiated the procurement of the new MK-45 Mod 9 Target Detecting Device and the MK-125 warhead. The FY 1991 request initiates the MK-72 Aegis booster required for the extended range missile.

Rolling Airframe Missile

	(\$ in Thousands)		FY 1991	
	FY 1990	Amount	Qty	Amount
Procurement	580	\$ 90,191	405	\$ 70,383
Initial Spares		886		680
Procurement Cost	580	\$ 91,077	405	\$ 71,063

The Rolling Airframe Missile (RAM) is a high-power, low-cost, lightweight, complementary self-defense system to engage anti-ship capable missiles. It will be fired from two launching systems: the NATO Sea Sparrow Surface Missile System (NSSMS), of which two cells of the NSSMS system will be modified to hold five (5) RAM rounds each; and a RAM stand-alone Command and Launch System that holds 21 missiles. Components of the missile will be procured competitively between General Dynamics and RAM Systems, a German contractor. The FY 1990 budget provides for the competitive procurement of 580 missiles and associated support costs, while the FY 1991 request provides for the procurement of 405 missiles.

Hellfire Missile

	(\$ in Thousands)		FY 1991	
	FY 1990		Qty	Amount
Procurement	1,098	\$ 50,307	1,198	\$ 42,076
Initial Spares		1,593		1,040
Procurement Cost	1,098	\$ 51,900	1,198	\$ 43,116

Hellfire, developed by the Army and currently competed by two producers, provides the Marine Corps with an extremely effective anti-armor weapon for use on AH-1T/J helicopters. The FY 1991 request will competitively procure 1,198 Hellfire missiles under an economic winner-take-all strategy. These missiles are required to build up the inventory to satisfy Marine Corps requirements.

Penguin Missile

	(\$ in Thousands)		FY 1991	
	FY 1990		Qty	Amount
Procurement	64	\$ 62,612	65	\$ 44,150
Advance Procurement		3,718		
Initial Spares		985		3,601
Procurement Cost	64	\$ 67,315	65	\$ 47,751

The Penguin missile is an autonomous short-range, air-to-surface weapon which is controlled by an infrared countermeasures-resistant seeker that is automatically activated when the missile reaches a preset range from the predicted position of the target. The missile is planned for use on the LAMPS MK III SH-60B helicopter as an anti-ship weapon. The MK 2 Mod 7 Penguin missile is a modification of the surface-launched MK 2 Mod 3 missile. The FY 1990 budget provides for the first procurement of 64 missiles and advance procurement to support FY 1992. The FY 1991 request provides for the procurement of 65 Penguin missiles.

Maverick Missiles

	FY 1990		FY 1991	
	Qty	Amount	Qty	Amount
Procurement	560	\$ 66,428		\$ 5,794
Initial Spares		1,447		6
Procurement Cost	560	\$ 67,875		\$ 5,800

The Maverick missiles program consists of the two variants employed with Navy and Marine Corps aircraft: the Imaging Infrared (IIR) Maverick (AGM-65F) and the Laser Maverick (AGM-65E). The IIR Maverick (AGM-65F) missile has been developed as a joint service program with the Air Force as executive service. The Navy version of the weapon utilizes an IIR guidance unit optimized for ship tracking, a 300-pound penetrating blast/fragment warhead with cockpit-selectable fusing, and a reduced-smoke rocket motor. The IIR Maverick missile will provide the Navy and Marine Corps with the capability to attack land and sea targets from a more survivable position below and outside of close-in air defense systems. The FY 1990 program is the final year of the IIR Maverick procurement for both the Navy and Air Force. The FY 1991 request provides for production support necessary to sustain the final IIR Maverick missile deliveries. FY 1988 was the last year for procurement of Laser Maverick procurement.

Aerial Targets

(\$ in Thousands)

	FY 1990			FY 1991		
	Qty	Amount	Initial Spares	Qty	Amount	Initial Spares
BQM-34S	50	\$26,821	\$ 175	40	\$23,213	\$ 200
AQM-37C	84	20,080	150	120	23,487	250
BQM-74C/E	122	33,903	476	192	47,679	1,083
Tow Targets		7,714	380		14,142	75
Other Targets		13,567	100		17,045	200
Misc Target Eq		22,339	100		16,855	300
Total		\$124,424	\$ 1,381		\$142,421	\$ 2,108
						\$144,529

Aerial targets provide the representative threats needed to properly evaluate weapons systems and to provide for an effective Fleet Training program. The BQM-34S and BQM-74C are both recoverable, subsonic targets that are required for both surface-to-air and air-to-air missile and gunnery exercises. The AQM-37C is a non-recoverable, supersonic target, which replicates high altitude, high speed threats. An upgraded version of the BQM-74C, the BQM-74E, is initially procured in FY 1991. The FY 1991 request provides for funding for the larger targets noted, as well as tow targets, modifications for the conversion of F-86 aircraft into QF-86 full-scale aerial targets and TALOS missiles into MQM-8X supersonic full-scale targets, and target auxiliary/augmentation system (TAAS) equipment required for target control, augmentation, and other target support costs.

Other Missile Support

(\$ in Thousands)		
FY 1990		FY 1991
Qty	Amount	Qty
	\$ 14,626	
		\$ 29,110

Procurement

The Other Missile Support Program procures Vertical Launching System (VLS) canisters and provides fleet support material for SUBROC. VLS is a missile launching system for surface combatants, capable of launching missiles for all warfare areas and adaptable to current and future weapons control systems. The FY 1990 program and FY 1991 request procures Types I and II VLS canisters for Tomahawk and SM-2 missiles and the Vertical Launched ASROC (VLA) ASW weapon. SUBROC equipment procurements were completed in FY 1988.

MODIFICATION OF MISSILES

(\$ in Thousands)

FY 1991 Estimate - \$101,330
FY 1990 Estimate - \$ 87,213
FY 1989 Estimate - \$ 90,872

The following paragraphs provide justification for the FY 1991 request for missile modifications.

	(\$ in Thousands)	
	FY 1990	FY 1991
<u>Air-Launched Missiles</u>		
Sidewinder	\$ -	\$ 7,076
Phoenix	-	3,809
Harpoon 1/ 2/	12,814	18,263
<u>Surface-Launched Missiles</u>		
Tomahawk 2/	3,329	26,726
Sparrow 1/	28,937	30,009
Standard Missile	11,713	15,447
<u>Installation of Modernization Equip</u>	30,420	
Total	\$ 87,213	\$101,330

1/ Sparrow and Harpoon can both be air and surface launched.
2/ Harpoon and Tomahawk can both be submarine launched.

The FY 1991 Sidewinder request provides funds required for the initial tooling and special test equipment of the Sidewinder AIM-9R upgrade to existing missiles.

The FY 1991 Phoenix request provides for insensitive munitions improvements to current AIM-54C inventory missiles.

The FY 1991 Harpoon request provides for continued replacement of improved seekers, miscellaneous minor upgrades and the new Improved Harpoon kits (extended range, reattack mode) for current missiles.

The FY 1991 Tomahawk request provides for missile guidance flight set computers and the new MK-111 rocket booster which will provide submarine launched missiles with a greater thrust capacity.

The FY 1990 Installation of Modernization Equipment program provides for the installation of equipment to modernize weapon systems including missiles and other weapons. These installation cost were previously budgeted in the Operations and Maintenance, Navy (O&M,N) account prior to FY 1990. The FY 1991 Installation of Modernization Equipment costs are budgeted as part of their respective FY 1991 missile or weapon program in the missile modification and gun mount modifications programs.

The FY 1991 Sparrow requests provides for the Missile Homing Improvement Program (MHIP) retrofit program (surface launched version only).

The FY 1991 Standard missile request provides for the MK-56 rocket motor and sustainer section modifications, a low altitude and directional ordnance improvement on SM-1 Block VI and SM-2 Block II missile currently in inventory, and terminal homing improvements added to the SM-2 Aegis missile (Standard Missile MHIP).

SUPPORT EQUIPMENT AND FACILITIES:

(\$ in Thousands)

FY 1991 Estimate	-	\$370,109
FY 1990 Estimate	-	\$441,157
FY 1989 Estimate	-	\$443,955

The following paragraphs provide justification for the FY 1991 request for support equipment and facilities. This group includes the Weapons Industrial Facilities, the Defense Meteorological Satellite (completed in FY 1989) program, the Fleet Satellite Communications programs, and the Ordnance Support Equipment program.

Weapons Industrial Facilities

(\$ in Thousands)			
FY 1990		FY 1991	
Qty	Amount	Qty	Amount
Procurement Costs			\$ 24,986
	\$ 16,828		

The FY 1991 request provides industrial facilities, producing missile and other ordnance, with funds for capital maintenance, emergency repairs, fire protection improvements, and energy conservation. These funds provide for nonrecurring capital maintenance at government-owned missile and weapon producing industrial plants as well as emergency repairs and improvements designed to reduce fire and other safety hazards. FY 1991 initiates a major upgrade of the Navy's industrial facilities which support major weapon systems production.

Fleet Satellite Communications

(\$ in Thousands)			
FY 1990		FY 1991	
Qty	Amount	Qty	Amount
Procurement			
Advance Procurement	\$161,747	3	\$249,599
Procurement Cost	150,949		
	\$312,696	3	\$249,599

The Fleet Satellite Communications (FLTSATCOM) system satisfies the Navy's urgent worldwide Ultra High Frequency (UHF) mobile user communication requirements. This includes protected fleet broadcast service to all Navy ships plus a command control with Anti-Submarine Warfare (ASW) platforms, Fleet Ballistic Missile (FBM) submarines, aircraft carriers, cruisers and other selected aircraft, ships and submarines. The system also satisfies the Air Force equatorial satellite communication requirements including presidential airborne command posts, Strategic Air Command and emergency mission support. Beginning in the early 1990's, UHF Follow-On satellites will replace the existing constellation as it reaches the end of its expected operational lifetime.

The FY 1990/91 program provides for the procurement of five satellites (the second through the sixth in the total program), production support, launch services, and non-recurring efforts for the first two EHF packages. The advance procurement funds in FY 1990 provide for the second increment of Advance Economic Order Quantity (AEQ) components and materials. These funds also procure a life-of-type buy of critical components to support the production of EHF packages commencing in FY 1991. The basic requirement is for nine satellites on orbit. The fixed price prime contract with Hughes Aircraft Company was awarded in FY 1988 for the first satellite. The multiyear option was executed in FY 1989 and includes eight satellites plus an option for one spare.

Ordnance Support Equipment

	(\$ in Thousands)	
	FY 1990	FY 1991
	<u>Qty</u>	<u>Qty</u>
Procurement Costs	<u>Amount</u>	<u>Amount</u>
	\$111,633	\$ 95,524

Detail justification is classified and is provided separately.

BUDGET ACTIVITY 3: TORPEDOES AND RELATED EQUIPMENT

(\$ in Thousands)

FY 1991 Estimate - \$ 841,318
FY 1990 Estimate - \$ 803,621
FY 1989 Estimate - \$ 844,468

Purpose and Scope of Work

These funds provide for the procurement of anti-submarine and anti-ship weapons such as torpedoes, mines and underwater targets, torpedo and mine modifications, and associated support equipment items related to production, as well as acquisition of other equipment and support necessary to maintain fleet readiness.

TORPEDOES AND TARGETS:

(\$ in Thousands)

FY 1991 Estimate - \$ 725,122
FY 1990 Estimate - \$ 730,793
FY 1989 Estimate - \$ 782,858

The following paragraphs provide justification for the FY 1991 torpedoes, targets and related equipment request.

MK-48 Torpedo Advanced Capability (ADCAP)

	FY 1990		FY 1991	
	Qty	Amount	Qty	Amount
Procurement	260	\$437,773	240	\$350,291
Initial Spares		4,700		5,353
Procurement Cost	260	\$442,473	240	\$355,644

The MK-48 ADCAP (Advanced Capability) torpedo was developed as an improvement to the MK-48 torpedo to counter enemy submarine threats through the 1990's. The improvements in the guidance and control systems will significantly improve the MK-48 torpedo's capability. Improvements in the propulsion system will allow the torpedo to go faster, deeper and farther than the current MK-48 torpedo. These improvements will allow the ADCAP torpedo to operate in several adverse environments. The FY 1990 program procures 260 ADCAP torpedoes under a dual source competition. The FY 1991 request provides for procurement of 240 torpedoes on an economic winner-take-all basis. This program also procures exercise sections, production support and ancillary equipment.

MK-50 Advanced Lightweight Torpedo (ALWT)

(\$ in Thousands)			
FY 1990		FY 1991	
Qty	Amount	Qty	Amount
200	\$270,790	265	\$328,266
Procurement			
Initial Spares	3,200		5,176
Procurement Cost	200	265	\$333,442

The MK-50 Advanced Lightweight Torpedo (ALWT) is the successor to the MK-46 lightweight torpedo. The MK-50 is an acoustic homing torpedo, which can be employed from either fixed-wing anti-submarine warfare (ASW) aircraft, ASW helicopters, and surface ships equipped with either torpedo tubes or Vertical Launched ASROC. The FY 1990 program procures 200 torpedoes from two sources. The FY 1991 request for 265 torpedoes maintains the competition between the two sources.

ASW Targets

(\$ in Thousands)			
FY 1990		FY 1991	
Qty	Amount	Qty	Amount
	\$ 12,975		\$ 26,409
Procurement			

The ASW Targets program was established to provide training exercise capability for torpedo firings and ASW detection and tracking. This program procures two types of ASW targets, the heavyweight MK-30 Mobile Target and the lightweight, portable MK-39 Expendable Mobile ASW Training Target (EMATT).

The MK-30 Mobile Target provides air, surface and submarine ASW units with the means to conduct realistic exercise firings on three-dimensional underwater ranges. This target provides the basic training capability to exercise surface ship and submarine sonars, actively and passively fired torpedoes, and aircraft equipped with sonobuoys and Magnetic Anomaly Detection (MAD) gear. FY 1990/91 provides for production support with no new procurements.

The MK-39 EMATT is a small, self-propelled underwater vehicle in continuous operation and whose trajectory is programmable. EMATT is detectable and trackable by passive towed arrays, active and passive sonobuoys, active sonars, the MK-46 torpedo in an active mode, and MAD-equipped aircraft. The FY 1990 program provides for the initial procurement of 1,105 EMATT units as an option to a current development contract. The FY 1991 request for 3,000 units will be competitively procured.

ASROC Component Replacement

(\$ in Thousands)			
FY 1990		FY 1991	
Qty	Amount	Qty	Amount
	\$ 9,255		\$20,156

Procurement Cost

The Anti-Submarine-Rocket (ASROC) is a weapon system designed around a range-controlled, unguided rocket missile which carries a torpedo or a depth charge as a payload. ASROC is utilized by most surface combatants to defend against high performance enemy submarines. The FY 1991 request provides for an increase in procurement to initiate a buy out for ASROC components, replacing those expenditures consumed during fleet training exercises. The principal element of cost in this program is the continued procurement of rocket motor and Ignition Separation Assemblies (MK-4 ISA). The ISA's are being procured in a new design which makes them safe from the hazards of accidental detonation caused by shipboard electromagnetic equipment (designated HERO: Hazards of Electromagnetic Radiation to Ordnance). Procurement of the HERO-safe MK-4 ISA is required in order to replenish inventories of the older non-HERO safe MK-3 ISAs depleted by training losses and will eventually replace the entire inventory of the older components.

MODIFICATION OF TORPEDOES AND RELATED EQUIPMENT:

(\$ in Thousands)

FY 1991 Estimate - \$ 27,836
FY 1990 Estimate - \$ 9,649
FY 1989 Estimate - \$ 13,314

The following paragraphs provide justification for the FY 1991 request for torpedo modifications and related equipment.

MK-46 Torpedo Modifications

(\$ in Thousands)			
FY 1990		FY 1991	
Qty	Amount	Qty	Amount
	\$ 8,678		\$ 11,740

Procurement

The MK-46 torpedo is a lightweight torpedo launched from surface vessel torpedo tubes, ASROC, and fixed and rotary wing aircraft. The FY 1991 request for \$11.7 million procures block upgrade modifications, including an anti-tampering mechanism.

Quickstrike Mine

	(\$ in Thousands)	
	FY 1990	FY 1991
Procurement	<u>Qty</u> <u>Amount</u>	<u>Qty</u> <u>Amount</u>
		\$ 16,096

The Quickstrike Mine request in FY 1991 provides for the procurement of the 2,000 pound MK-65 service and non-service mines to include the MK-58 Target Detecting Devices (TDD's) and associated safety and arming devices. Beginning in FY 1991 this program was transferred from the Other Procurement, Navy (OPN) appropriation to more properly align all munitions in the WPN account.

Swimmer Weapon System

	(\$ in Thousands)	
	FY 1990	FY 1991
Procurement	<u>Qty</u> <u>Amount</u>	<u>Qty</u> <u>Amount</u>
Initial Spares	\$ 971	38
Procurement Cost	\$ 1,009	

This program procures unique weapons and equipment required by the Navy Special Warfare Groups One and Two (SEAL teams) to carry out beach clearance, underwater and direct action missions. Currently, there are eight SEAL teams deployed within the Fleet. Current equipment includes the MK-32 standoff weapon assembly, consisting of the MK-31 standoff weapon and MK-5 weapon control system. Beginning in FY 1991, this program was transferred to Procurement, Defense Agencies (PDA) to consolidate all Special Operations Forces funding in a centrally managed account.

SUPPORT EQUIPMENT:

(\$ in Thousands)

FY 1991 Estimate - \$ 88,360
FY 1990 Estimate - \$ 63,179
FY 1989 Estimate - \$ 48,296

The following paragraphs provide justification for the FY 1991 request for torpedo support equipment. This group includes the Torpedo Support Equipment, the ASW Range Support, and First Destination Transportation charges programs.

Torpedo Support Equipment

(\$ in Thousands)			
FY 1990		FY 1991	
Qty	Amount	Qty	Amount
	\$ 38,984		\$ 55,278

Procurement Cost

The program procures components necessary to restore weapons used to conduct fleet training exercises (which involves the actual firing of torpedoes) back to a ready-for-issue warshot status. This request supports combat-ready deployment of anti-submarine warfare forces. The funds requested procure such expended components as batteries, pressure cylinders, propellant assemblies and various air-launch accessories; equipment and components worn out or lost during repeated service such as exercise heads and fuel tanks; and production support efforts associated with the above procurements. Procurement quantities of these items vary each year and are dependent upon fleet training requirements and the tempo of operations. The FY 1991 request procures material required to support fleet training exercises and operational inventories for the MK-46, MK-48/MK-48 ADCAP torpedoes and exercise turnaround kits for the MK-50 Advanced Lightweight Torpedo.

ASW Range Support

	(\$ in Thousands)	
	FY 1990	FY 1991
	Qty	Amount
Procurement		Qty
Initial Spares	\$ 24,195	\$ 24,382
Procurement Cost	248	479
	\$ 24,443	\$ 24,861

The Anti-Submarine Warfare Range Support program provides for the procurement of range proofing and fleet support equipments required for use on the Navy's underwater ranges and for the fixed costs of on-range proofing services. This includes the procurement of pingers, transponders, MK-30 and MK-27 target exercise components and other related items. This program supports fleet exercises and torpedo firings and provides equipment to maintain ASW readiness.

First Destination Transportation

	(\$ in Thousands)	
	FY 1990	FY 1991
	Qty	Amount
Cost	Qty	Amount
		\$ 8,700

The First Destination Transportation line provides for the movement of newly procured equipment and material from the contractor's plant to the initial point of receipt by the government for subsequent shipment to its final destination. Beginning in FY 1991 these funds have been transferred from Operations and Maintenance, Navy to more accurately reflect the full costs of equipment and weapons systems procurements.

BUDGET ACTIVITY 4: OTHER WEAPONS

(\$ in Thousands)

FY 1991 Estimate - \$ 202,146
FY 1990 Estimate - \$ 157,457
FY 1989 Estimate - \$ 107,345

Purpose and Scope of Work

Funds budgeted under this activity finance the procurement of guns and gun mounts for Navy and Coast Guard ships, as well as modifications and support equipment.

GUNS AND GUN MOUNTS:

(\$ in Thousands)

FY 1991 Estimate - \$ 84,709
FY 1990 Estimate - \$ 77,026
FY 1989 Estimate - \$ 38,068

Funds budgeted under this activity finance the procurement of guns and gun mounts for Navy and Coast Guard ships, as well as modifications and support equipment.

MK-15 Close-In-Weapon System (CIWS)

	FY 1990		FY 1991	
	Qty	Amount	Qty	Amount
Procurement	18	\$ 59,868	17	\$ 61,958
Initial Spares		690		539
Procurement Cost	18	\$ 60,558	17	\$ 62,497

The MK-15 Close-In-Weapon System (CIWS) Phalanx is a fast reaction, terminal defense against low flying aircraft and anti-ship missiles penetrating other fleet defensive systems. The system is an automatic, self-contained unit consisting of search and track radar, a digital fire control system and a 20mm M61A1 gun which automatically detects, evaluates, tracks, engages, assesses kill and returns to search mode. The system will be installed in over 300 ships, both new construction and retrofit. The FY 1991 request continues procurement of CIWS for retrofit on existing ships.

MK-75 76mm Gun Mount

	(\$ in Thousands)	
	FY 1990	FY 1991
	Qty	Qty
Procurement	Amount	Amount
Initial Spares	\$7,174	\$ 0
Procurement Cost	2 2,500	2,725
	2 \$ 9,674	\$ 2,725

The FY 1990 MK-75 76mm gun program provides systems to be used as rotatable pool mounts (RPM's) to support the rework of 25 gun systems during U.S. Coast Guard ship overhauls.

MK-19 40mm Machine Gun

	(\$ in Thousands)	
	FY 1990	FY 1991
	Qty	Qty
Procurement	Amount	Amount
	\$0	\$ 538

The MK-19 Mod 3 40mm machine gun provides a more effective, safe and reliable grenade firing weapon for arming surface ships and small craft. The FY 1991 request procures 25 weapons to replace the Navy's older inventory of 40mm machine guns. New requirements include outfitting the 36-foot Seafox craft, construction battalions and special warfare units.

MK-38 25mm Gun System

	(\$ in Thousands)	
	FY 1990	FY 1991
	Qty	Qty
Procurement	Amount	Amount
Initial Spares	22 \$ 4,906	55 \$ 9,609
Procurement Cost	22 190	55 200
	22 \$ 5,096	55 \$ 9,809

The MK-38 25mm gun system is a single barrel, 25mm M242 automatic gun mounted on a manually operated MK-88 deck mount and is the planned replacement weapon for the MK-16 20mm machine gun. The MK-38 system serves as a short range defensive and offensive armament for surface ships and small craft. The FY 1991 request procures 55 systems.

Small Arms and Weapons

(\$ in Thousands)			
FY 1990		FY 1991	
Qty	Amount	Qty	Amount
	\$ 3,850		\$ 12,604

Procurement

This program procures a wide variety of small arms and weapons, including rifles, 9mm pistols, shotguns, .50 caliber machine guns, and 7.62mm machine guns. These small arms support security training, over 2,600 ship and shore activities, mobile construction battalion units, special warfare units, and crisis response teams throughout the Navy.

Small Arms and Weapons (SOF)

(\$ in Thousands)			
FY 1990		FY 1991	
Qty	Amount	Qty	Amount
	\$ 1,228		

Procurement

This program procures a wide variety of small arms and weapons, including rifles, 9mm pistols, shotguns, .50 caliber machine guns, and 7.62mm machine guns. These small arms support the Navy's Special Operations Forces (SOF) special warfare units. Beginning in FY 1991 funding has been transferred to Procurement, Defense Agencies to consolidate SOF resources for centralized management.

MODIFICATION OF GUNS AND GUN MOUNTS:

(\$ in Thousands)

FY 1991 Estimate - \$ 112,174
FY 1990 Estimate - \$ 76,005
FY 1989 Estimate - \$ 68,591

Funds budgeted under this activity finance the procurement of gun and gun mount modifications.

MK-15 Close-In-Weapon System (CIWS) Modifications

(\$ in Thousands)			
FY 1990		FY 1991	
Qty	Amount	Qty	Amount
	\$ 56,457		\$ 81,292

Procurement Cost

The MK-15 Close-in-Weapon System (CIWS) modifications requested in FY 1991 provides for upgrading to the Baseline 2 configuration, and includes increased magazine capacity, search elevation angle, and various other modifications, such as reliability and maintainability improvements. Improvements are backfit into MK-15 CIWS systems procured prior to FY 1985, as well as trainers.

5"/54 Gun Mount Modifications

(\$ in Thousands)			
FY 1990		FY 1991	
Qty	Amount	Qty	Amount
	\$ 11,033		\$ 17,611
	2,675		2,983
	\$ 13,708		\$ 20,594

Procurement Cost
Initial Spares
Procurement Cost

This program procures hardware to improve the operability, reliability, maintainability and availability of all in-service 5 inch/54 caliber gun mounts.

3"/50 Gun Mount Modifications

(\$ in Thousands)			
FY 1990		FY 1991	
Qty	Amount	Qty	Amount
	\$ 276		\$ 885

Procurement Cost

This program procures hardware to improve the operability, reliability, maintainability and availability of all in-service 3 inch/50 caliber gun mounts.

MK-75 76mm Gun Mount Modifications

(\$ in Thousands)			
FY 1990		FY 1991	
Qty	Amount	Qty	Amount
Procurement Cost	\$ 5,810		\$ 9,985
Initial Spares	263		434
Procurement Cost	\$ 6,073		\$ 10,419

This program procures hardware to improve the safety, operability, reliability, maintainability, survivability and shock and vibration capabilities for all in-service MK-75 76mm gun mounts.

Modifications Under \$2 Million

(\$ in Thousands)			
FY 1990		FY 1991	
Qty	Amount	Qty	Amount
Procurement Cost	\$ 2,429		\$ 2,401

This program procures hardware to improve the safety, operability, reliability, maintainability and availability of all in-service 16 inch/.50 caliber and 5 inch/.38 caliber gun mounts.

SUPPORT EQUIPMENT:

(\$ in Thousands)

FY 1991 Estimate - \$ 5,263
FY 1990 Estimate - \$ 4,426
FY 1989 Estimate - \$ 686

The following paragraph provides justification for the FY 1991 request for gun support equipment.

Gun Support Equipment

(\$ in Thousands)			
FY 1990		FY 1991	
Qty	Amount	Qty	Amount
Procurement Cost	\$ 4,426		\$ 5,263

This program procures match grade small arms, saluting mounts, and relining equipment for the 16 inch/.50 caliber gun barrels on the U.S.S. Iowa class battleships.

BUDGET ACTIVITY 5: OTHER ORDNANCE

Purpose and Scope of Work

These funds support procurement of all air-delivered ordnance, ship gun ammunition, and other expendable ordnance required for the Navy forces and Marine Air Wings, except guided missiles. This program has been transferred from the Other Procurement, Navy (OPN) appropriation beginning in FY 1991 to consolidate munitions funding in the Weapons Procurement, Navy appropriation.

AIR LAUNCHED ORDNANCE:

These funds support procurement of all air-delivered ordnance required for the Navy forces and Marine Air Wings.

FY 1991	Estimate	\$275,174
FY 1990	Estimate	-
FY 1989	Estimate	-

(\$ in Thousands)

FY 1991 Estimate	-	\$122,062
FY 1990 Estimate	-	\$ -
FY 1990 Estimate	-	\$ -

General Purpose Bombs

	FY 1990		FY 1991	
	Qty	Amount	Qty	Amount
Procurement Cost				\$ 48,018

These funds will procure various components for the Navy's present MK-80 series general purpose bombs, including fins and fuzes. The FY 1991 request provides for the procurement of 500-pound MK 82 thermally protected (TP) bombs and FMU-139 electronic fuzes.

2.75 Inch Rockets

(\$ in Thousands)			
FY 1990		FY 1991	
Qty	Amount	Qty	Amount
			\$ 14,644

Procurement Cost

This program consists of the 2.75 Inch rocket system, an air-to-ground weapon consisting of a variety of warheads fired from a seven/nineteen type cylindrical launcher. This rocket system is cleared for use on the following USN and USMC aircraft: A4, A6, A7, F4, F/A-18, AH1, AV-8 and OV10. The FY 1991 request is for procurement of MK-66 rocket motors, M257 flares and product improvement efforts related principally to expanding insensitive munitions capabilities.

Machine Gun Ammunition

(\$ in Thousands)			
FY 1990		FY 1991	
Qty	Amount	Qty	Amount
			\$ 12,450

Procurement Cost

This program includes procurement of 20mm and 25mm ammunition used with various aircraft (A-7E, F-14, F/A-18, AH-1, and AV-8B) gun systems. The FY 1991 request supports procurement of: improved series 20mm practice gun ammunition, used with various aircraft gun systems for fleet training to maintain pilot proficiency and war reserve; 25mm high explosive incendiary (HEI) ammunition for war reserve requirements for the AV-8B; production/engineering support for ammunition procurements, and associated gaging and integrated logistics support planning. Additionally, funding is required for product improvement efforts to increase the safety and reliability of the 25mm fuze, to satisfy 25mm incentive munitions requirements, to complete work on fragmentation and ricochet problems in 25mm TP ammunition, to incorporate a radiation-safe primer into the improved 20mm ammunition, and to assess the feasibility of using an aluminum cartridge case for the improved 20mm ammunition.

Practice Bombs

(\$ in Thousands)			
FY 1990		FY 1991	
Qty	Amount	Qty	Amount
			\$ 38,039

Procurement Cost

This program will procure various practice bombs and components in support of Fleet training requirements. The FY 1991 request includes MK-76 and BDU-48 bombs used for training pilots in the delivery of unretarded MK-80 series bombs and in retarded and lay-down deliveries; practice Rockeye bombs; full-sized MK-80 series inert bombs, including the BDU-45 NTP (MK-80) and the MK-83 Inert NTP; and Laser Guided Training rounds. Additionally, FY 1991 procures CXU-3 and MK-4 signals, which provide smoke markings upon bomb impact; production engineering support, production engineering support, and product improvements including BDU trainer integrated logistics support planning.

BIGEYE Chemical Weapon

(\$ in Thousands)			
FY 1990		FY 1991	
Qty	Amount	Qty	Amount
			\$ 8,911

Procurement Cost

The BIGEYE is an air-launched binary chemical bomb. It generates and delivers a lethal, persistent nerve agent created by combining two non-toxic chemicals. BIGEYE will provide enhanced reliability to the existing inventory of aging chemical weapons. The FY 1991 request provides for initial production of the BIGEYE bomb and for production engineering support.

SHIP ORDNANCE:

These funds support procurement of all ship gun ammunition required for the Navy forces, except guided missiles.

(\$ in Thousands)

FY 1991 Estimate -	\$116,612
FY 1990 Estimate -	\$ -
FY 1989 Estimate -	\$ -

Ship Gun Ammunition (P-1 Line Items 63 Through 71)

(\$ in Thousands)	
FY 1990	FY 1991
Qty	Qty
Amount	Amount
	\$116,612

Procurement Cost

The FY 1991 request provides for procurement of various types of Ship Gun Ammunition including 3 inch/50 ammunition (\$5 million), 5 inch/38 ammunition (\$4.4 million), 5 inch/54 ammunition (\$11.9 million), 16 inch ammunition (\$33 million), 20mm ammunition for the Close-In Weapon-System (CIWS) (\$32.8 million), 76mm ammunition (\$1.1 million), and Other Ship Gun ammunition (\$32.9 million). The primary mission for the 76mm ammunition is used against air targets, but it is also used against surface and shore targets. The 16 inch ammunition is used by battleships against surface and shore targets. The 5 inch ammunition is the most common and is used by nearly all of the Navy's combatant ships. The 20mm ammunition for CIWS is used against low flying aircraft and anti-ship missiles penetrating other fleet defensive systems. Other ship gun ammunition provide for close in defense of ships.

OTHER ORDNANCE:

(\$ in Thousands)

FY 1991 Estimate - \$ 36,500
 FY 1990 Estimate - \$ -
 FY 1989 Estimate - \$ -

Other Ordnance (P-1 Line Items 72 & 73)

(\$ in Thousands)			
FY 1990		FY 1991	
Qty	Amount	Qty	Amount
Procurement Cost			\$ 36,500

The FY 1991 request includes procurement of Small Arms & Landing Party Ammunition, and Pyrotechnics and Demolition Materials. The Small Arms and Landing Party Ammo request (\$33.9 million) provides ammunition in support of active naval vessels, and for active and reserve special warfare forces, including replacement of Non-Combat Expenditure Requirements (NCER), initial allowance for all approved active and reserve forces, and a combat reserve and/or material pipeline of ammunition quantities based on a "Days of Support" analysis. The FY 1991 request for Pyrotechnics and Demolition Material (\$2.6 million) provides pyrotechnics and demolition materials for all active naval vessels, amphibious and mobile construction battalions, harbor clearance units, cargo handling and port groups.

BUDGET ACTIVITY 6: SPARE AND REPAIR PARTS

(\$ in Thousands)

FY 1991 Estimate - \$ 78,509
FY 1990 Estimate - \$ 111,302
FY 1989 Estimate - \$ 77,308

Purpose and Scope of Work

Funds budgeted under this activity finance the procurement of spare and repair parts for Weapons Procurement, Navy (WPN) weapons systems. These spare parts are required to maintain the weapon system prior to the Material Support Date (MSD) after which spares support is provided through the Navy Supply System.

Initial Spares

(\$ in Thousands)		
FY 1990		FY 1991
Qty	Amount	Qty
	\$ 93,965	\$ 69,805

Procurement Cost

These funds provide initial spare and repair parts for missile, torpedo and weapon systems procured in this appropriation. Requirements are determined by detailed provisioning procedures that include a wide range of factors about end item usage, usage rate trends, engineering judgment and repairable item turnaround time.

Replenishment Spares

(\$ in Thousands)		
FY 1990		FY 1991
Qty	Amount	Qty
	\$ 17,337	\$ 8,704

Procurement Cost

These funds provide replenishment spare and repair parts for missile, torpedo and weapon systems procured in this appropriation. Requirements are determined by stratification techniques which include the number of end items in the fleet, repair usage data, Ready-for-Issue (RFI) spares returning from rework/repair programs and equipment lead times.

Comparison of FY 1990 Program Requirements as Reflected
In Amended FY 1990/1991 Budget With FY 1990 Program Requirements as
Shown in FY 1991 Budget

Summary of Requirements (In Thousands of Dollars)

	<u>Total Program Requirements Per Amended FY 1990 Budget</u>	<u>Total Program Requirements Per FY 1991 Budget</u>	<u>Increase (+) or Decrease (-)</u>
Ballistic Missiles	1,818,165	1,442,660	-375,505
Other Missiles	2,783,337	2,837,940	+54,603
Torpedoes and Related Equipment	859,696	803,621	-56,075
Other Weapons	169,361	157,457	-11,904
Spares and Repair Parts	94,441	111,302	+16,861
Subtotal Direct Program	5,725,000	5,352,980	-372,020
Reimbursable Program	158,000	70,000	-88,000
Total Fiscal Year Program	5,883,000	5,422,980	-460,020

Explanation by Budget Activity

1. Ballistic Missiles (\$-375,505)

The net change is the result of Congressional reduction of 21 Trident D-5 missiles (\$-375,000) and a fair share of an undistributed Congressional reduction to contractor travel (\$-505).

Explanation by Budget Activity

2. Other Missiles (\$+54,603)

The net change results from Congressional actions including AMRAAM (\$-21,685), Phoenix (\$-53,000), HARM (\$+13,900), Standard Missiles (\$+79,800), Drones and Decoys (\$+25,000), Weapon Industrial Facilities (\$+4,500), and for the Installation of Modernization Equipment (\$+30,420). Others changes include: reductions for Contractor Assistance Advisory Services (CAAS) (\$-2,919); contractor travel (\$-1,013), transfers supporting Military Personnel, Navy from Drones and Decoys (\$-25,000) and Weapons Industrial Facilities (\$-4,500) and deferrals (HARM (\$-13,900). Additionally, transfer to the Penguin missile program (\$+23,000) to cover revised cost estimates has been reflected.

3. Torpedoes and Related Equipment (\$-56,075)

The net change results from Congressional actions totalling to MK-48 ADCAP (\$-55,000) and the MK-50 ALWT (\$+2,000). Other changes included reductions for contractor travel (\$-283), CAAS (\$-993), and the termination of the Sea Lance program (\$-1,799), which will be transferred to Military Personnel, Marine Corps.

4. Other Weapons (\$-11,904)

The net change results from a Congressional reduction to the MK-19 40MM Machine Gun program (\$-523), as well as reductions to the Small Arms and Weapons (\$-5,700) and Close-In-Weapons System (CIWS) modifications (\$-5,501) applied to finance Military Personnel, Marine Corps. Other changes include reductions for contractor travel (\$-47) and CAAS (\$-133).

5. Spare and Repair Parts (\$+16,861)

The net change results from Congressional actions including an increase for MK-46 Torpedo initial spares (\$+18,000), offset by a reduction for AMRAAM initial spares (\$-1,100). Others changes include a reduction for contractor travel (\$-39).

Comparison of FY 1990 Financing As Reflected
In Amended FY 1990/1991 Budget With FY 1990 Financing As
Shown in FY 1991 Budget
(In Thousands of Dollars)

	Financing Per Amended FY 1990/1991 Budget	Financing Per FY 1991 Budget	Increase (+) or Decrease (-)
Program Requirements (Total)	5,883,000	5,422,980	-460,020
Program Requirements (Service Account)	5,725,000	5,352,980	-372,020
Program Requirements (Reimbursable)	158,000	70,000	-88,000
Less:			
Anticipated Reimbursements	158,000	70,000	-88,000
Plus:			
Unobligated balance available, end of year available to finance subsequent year budgets		13,900	+13,900
Budget Authority:			
Appropriation	5,725,000	5,392,312	-332,688
Reduction pursuant to P.L. 101-165		-5,932	-5,932
Transferred to other accounts		-42,500	-42,500
Transferred from other accounts		23,000	23,000
Appropriation (Adjusted)	5,725,000	5,366,880	-358,120

Explanation of Changes in Financing

1. Program Requirements (TOTAL)

The decrease reflects a net of Congressional actions, inter-appropriation reprogrammings and inter-agency transfers.

2. Program Requirements (Service Account)

The net change is the result of reductions from Congressional actions (\$-332,688), contractor travel (\$-1,887), and CAAS (\$-4,045) and proposed transfers to Military Personnel, Navy and Military Personnel, Marine Corps requirements (\$-56,400), offset by a reprogramming increase to the Penguin missile program (\$+23,000).

3. Program Requirements (Reimbursable)

Last year reimbursable requirements were increased to cover WPN budget authority for the Rolling Airframe Missile (RAM) program. The decrease reflects a reduction in authority based on the direct citation of RAM reimbursable requirements.

4. Anticipated Reimbursements

As noted above, previously anticipated reimbursable orders were reduced based on the use of direct cite authority for RAM funding requirements for FMS sales.

5. Unobligated Balance Available End of Year

This increase reflects an amount available to finance the subsequent year budget.

6. Appropriation

The decrease reflect approved Congressional FY 1990 authorization and appropriation actions.

7. Reduction pursuant to P.L. 101-165

This net decrease reduces amounts budgeted for Consultant Assistance Advisory Services (\$-4,045) and contractor travel (\$-1,887) in accordance with Congressional direction.

Explanation of Changes in Financing

8. Transferred to Other Accounts

The decrease reflects reprogramming actions for Military Personnel, Navy (\$-29,500) and Military Personnel, Marine Corps (\$-13,000), and Nicaraguan Democratic Resistance (\$-1,739).

9. Transferred from Other Accounts

The increase reflects a reprogramming action for continued production of the Penguin missile (\$+23,000).

10. Appropriation Adjusted

The net of adjustments to the WPN appropriation since approval by the Congress.

Comparison of FY 1989 Program Requirements as Reflected
In Amended FY 1990/1991 Budget With FY 1989 Program Requirements as
Shown in FY 1991 Budget

Summary of Requirements (In Thousands of Dollars)

	<u>Total Program Requirements Per Amended FY 1990/91 Budget</u>	<u>Total Program Requirements Per FY 1991 Budget</u>	<u>Increase (+) or Decrease (-)</u>
Ballistic Missiles	1,870,263	1,870,263	-
Other Missiles	3,202,486	3,192,124	-10,362
Torpedoes and Related Equipment	841,868	844,468	+2,600
Other Weapons	105,045	107,345	+2,300
Spares and Repair Parts	73,308	77,308	+4,000
Subtotal Direct Program	6,092,970	6,091,508	-1,462
Reimbursable Program	279,000	162,651	-116,349
Total Fiscal Year Program	6,371,970	6,254,159	-117,811

Explanation by Budget Activity

1. Ballistic Missiles

No change.

Explanation by Budget Activity

2. Other Missiles (\$-10,362)

The net change is the result of reprogramming reductions for aid for the Nicaraguan Democratic Resistance (\$-1,739), for Operations and Maintenance, Navy (O&MN) requirements for various shortfalls (\$-4,200) and for the civilian pay raise (\$-12,423), offset by a reprogramming increase to the to the MK-67 SLM missile program (\$+8,000).

3. Torpedoes and Related Equipment (\$+2,600)

The increase results from the restoration of funds previously cited for a reprogramming reduction from the Torpedo Support Equipment program based on revised requirements to support O&MN.

4. Other Weapons (\$+2,300)

The increase results from the restoration of funds previously cited for a reprogramming reduction from the MK-15 CIWS program based on revised requirements to support O&MN.

5. Spares and Repair Parts (\$+4,000)

The increase results from the restoration of funds previously cited for a reprogramming reduction from the Torpedo Initial Spares program based on revised requirements to support O&MN.

Comparison of FY 1989 Financing As Reflected
In Amended FY 1990/1991 Budget With FY 1989 Financing As
Shown in FY 1991 Budget

(In Thousands of Dollars)			
	Financing Per Amended FY 1990/91 Budget	Financing Per FY 1991 Budget	Increase (+) or Decrease (-)
Program Requirements (Total)	6,371,970	6,254,159	-117,811
Program Requirements (Service Account)	6,092,970	6,091,508	-1,462
Program Requirements (Reimbursable)	279,000	162,651	-116,349
Less:			
Reimbursements	279,000	162,651	-116,349
Plus:			
Unobligated balance available, start of year Reprogramming from prior year budget plans		-8,000	-8,000
Unobligated balance available, end of year Available to finance subsequent year budget		1,739	+1,739
Budget Authority:			
Appropriation	6,154,032	6,154,032	-
Reduction pursuant to P.L. 100-463	-5,062	-5,062	-
Transferred to other accounts	-56,000	-63,723	-7,723
Appropriation (adjusted)	6,092,970	6,085,247	-7,723

Explanation of Changes in Financing

1. Program Requirements (TOTAL)

The decrease reflects a net of congressional actions, inter-appropriation reprogrammings and inter-agency transfers.

Explanation of Changes in Financing

2. Program Requirements (Service Account)

The net change reflects reprogramming and transfer actions to the

3. Program Requirements (Reimbursable)

The decrease reflects actual reimbursable orders recieved.

4. Anticipated Reimbursements

Same as above.

5. Unobligated balance, start of the year

The decrease reflects a reprogramming from prior year budget plans.

6. Unobligated balance, end of the year

The increase reflects an amount available to finance the subsequent year budget.

7. Appropriation

No change.

8. Reduction pursuant to P.L. 100-463

No change.

9. Transferred to Other Accounts

The net change reflects reprogramming and transfer actions to the Operation and Maintenance, Navy program for Operation and Maintenance, Navy (O&MN) (\$-12,423) for the civilian pay raise and for various shortfalls (\$-4,200), offset by restorals for previously cited reprogramming sources totalling \$8,900.

10. Appropriation Adjusted

Reflects net adjustments for transfers to other accounts.